

## **What Are Missed in Intelligence Studies**

If Newton had used Pascal's probability thinking and language, could he have established classical physics ? Without classical physics, there would be no base to develop quantum physics.

John von Neumann suggested some valuable mathematical theories for quantum physics. However, he was terribly wrong in his weather control plan (See Freeman Dyson's Birds and Frogs). What languages and mathematical method to use and think, makes big difference.

Neurosciences only make progresses in some animal level intelligence: vision, motion, emotion, or something similar, etc. They can do very little to understand human specific intelligences, such as the principles and mechanisms behind the development of natural languages, philosophical opinions, mathematics axiom systems, and sciences, etc.

To study human intelligence, I propose three research plans:

- 1) With Go game, study what factors constrains human intelligence in Go games, and develop testing procedures for computer Go products [1], etc.
- 2) With natural languages, study what language factors are needed in human specific intelligence studies, etc. Also, a middle-level test for natural language processing is needed to measure the current status of artificial intelligence [2]. Turing Test is misleading.
- 3) Study intelligence in life systems including real neural systems.

The semantics of irrational numbers is a key to look into these issues, which is already partially proved by the recent developments. Deep learning does not provide insights of which tasks are easy and which are difficult, and even cannot be used to analyse the weakness of AlphaGo.

However, without clarifying the sophism and misleading in brain and intelligence studies, including Leukotomy[3] and Turing Test, there is no fair environment to study human specific intelligence.

Without fair environment and fair allocation of research resources, I am unable to do further research.

[1] Other people also could think of what factors constrains human

intelligence in financial trading, etc., to see any difference from those in Go game.

AlphaGo は、Deepmind の Demis Hassabis によって開発された強化学習アルゴリズムによる棋譜解析技術を用いています。AlphaGo は、既存の棋譜データベースから棋譜を収集し、それらをもとに棋譜解析を行い、棋譜の構造や戦略を理解する能力を持っています。また、AlphaGo は、棋譜解析結果に基づいて棋譜を評価し、棋譜を改良する能力を持っています。

AlphaGo Deepmind AI AlphaGo AlphaGo

Deepmind 人工智能 AlphaGo 人工智能 Dialogue Concerning the Two Chief World Systems, 1632, by Galileo Galilei

[2] There are much more difficult tasks in natural language processing than machine translation. Even machine translation is far from perfect. So a test is needed to know where AI currently is.

[3] Leukotomy 1949 Leukotomy therapeutic value “25% showed no change, 2% had become worse and 4% had died.” Leukotomy 25% no change